

FRANÇOIS BORDES: *Typologie du Paléolithique ancien et moyen*. Cahiers du Quaternaire 1. Institut du Quaternaire, Université de Bordeaux I. Éditions du Centre National de la Recherche Scientifique. 103 pages, 11 figures, 108 planches, 3<sup>ème</sup> édition, Paris 1979.

Die 1. Auflage des 1961 als Band I der „Publications de l'Institut de Préhistoire de l'Université de Bordeaux“ (Imprimerie Delmas) erschienenen Werkes ist von L. Zotz in Bd. 14, 1962/63 von QUARTÄR so ausführlich besprochen und in seiner damals fundamentalen Bedeutung gewertet worden, daß dem inhaltlich nichts hinzuzufügen bleibt. Die auch nach 20 Jahren uneingeschränkte Wichtigkeit des für jeden mit dem Paläolithikum Befassten schlechthin unentbehrlichen Buches sichert ihm die volle Zustimmung zur 3. Auflage, womit zugleich die neue von F. Bordes und D. de Sonneville-Bordes begründete Reihe „Cahiers du Quaternaire“ eröffnet wird. Begrüßen wird man vor allem das wesentlich handlichere Format 21/29,7 cm mit Satzspiegel 16/23,5 cm. Die Verkleinerung der Abbildungen auf 4/5, die auch den Tafelband so erfreulich leichter benutzbar macht, beeinträchtigt bei keiner, auch nicht der kleinsten Einzelzeichnung, die Lesbarkeit. Die zusätzliche Anbringung eines Maßstabes auf jeder Tafel wäre dennoch begrüßenswert gewesen. – Der schon von L. Zotz bei der Erstauflage, freilich nur am Rand, vermerkte Mangel, nämlich das weitgehende Fehlen von Querschnittzeichnungen, bleibt leider auch jetzt bestehen. Die durchgehende Ergänzung solcher Quer- oder Längsschnitte hätte vermutlich jedoch eine völlige Neumontage des Tafelteils vorausgesetzt, ein Aufwand, den Kenner des westeuropäischen Fundmaterials gewiß für überflüssig, Benutzer des Werkes außerhalb der klassischen Regionen der Paläolithforschung als sicherlich der Mühe wert gefunden hätten. Für letztere ist das vorliegende Werk in den 20 Jahren seit seinem Ersterscheinen ebenso zunehmend zum unentbehrlichen „Handwerkszeug“ geworden, wie dies für westeuropäische Kollegen längst selbstverständlich war, wenngleich auch Bordes' „Typologie“ besonders in Mittel- und Osteuropa Modifikationen und Erweiterungen erfordert und ihre Anwendung in vorliegender Form nicht immer mit der notwendigen Vor- und Umsicht gehandhabt wird. Dennoch darf der 3. Auflage in außerwesteuropäischen Ländern wohl der größere Absatz vorausgesagt werden.

Gisela Freund

PERLÈS, CATHERINE, *Préhistoire du Feu*. 192 pp., 48 Figs. + 5 maps, bibliography, author index and site index. Masson, Paris 1977.

Perlès presents us with a critical review of the archaeological evidence related to the manipulation of fire. Dealing with what may be taken as the most decisive step in human evolution, the detailed information gathered in this book, for the first time, is of utmost importance.

The author describes first the physical and chemical properties of the residues of combustion in order to assess their chances of preservation in the archaeological record. Against the generally held opinion that these remains are fragile and delicate, the author concludes that traces of fire are practically indestructible and, hence, a site where no such traces have been found (charcoal, burnt stone or bone) should be considered a site where no fire has burnt. Once this conclusion is accepted, it ensues that fire was domesticated between one half to one million years ago in Europe and the Far East, but surprisingly, only in the last 100,000 years in Africa and the Near East. This long delay has no explanation.

The evidence on how fire was obtained during the Palaeolithic is practically nonexistent. The author surveys the ethnographical data (Ch. 2) to give us an idea of how it could have been done in the past. There follows a survey of the maintenance of fire and the types of fuel used (Ch. 3). The principle substances were wood and bone, mainly bones rich in fat. Other types of fuel were locally utilised, and some others might have been used but left no trace in the archeological record, for example, dry feces.

Three chapters (4, 5 and 6) are devoted to the various uses of fire and its ensuing consequences. The assumption whereby man's migration out of Africa was preceded by the domestication of fire cannot be attested, since several of the most ancient sites known at present, outside of Africa, have no traces of fire. Likewise, the assumption that fire enabled the occupation of caves by man is hampered by the fact that numerous caves have no trace of fire, dated to early as well as later periods. Another hypothesis which is but vaguely supported is the use of fire as weapons for defence or hunting. Hearths are generally located inside, and not outside the habitation area as would be implied for defence. The evidence brought forth hitherto supporting the use of fire to drive off animals might as well be a result of natural fire.

Heating is, of course, intrinsic to fire. Yet, Perlès is reluctant to accept the use of reddened stones as heat generators, or the existence of hearths whose specific task was heating. She points out (p. 62) that every hearth might have served for heat, cooking and light but only the last of these functions is recorded by the archaeologist. Besides heating, the uses of fire that are best substantiated in the archeological record are light, cooking and the thermal treatment of various substances.

The use of fire for light is attested by a multitude of lamps, some with carved and others with a natural concavity. Their interpretation as lamps is supported by their presence only in caves and rock shelters, and not in open air sites. Torches might also have been used, but this is naturally more difficult to demonstrate safely.

The various methods in which cooking and roasting could have been done in prehistory, and the relevant ethnographical information, are described in great detail and in an appetizing form. Cooking and roasting in prehistory are attested by the abundance of burnt or charred bones in and around the hearths. The form of break and the size of bone fragments support the hypothesis of deliberate break for the extraction of marrow. Perlès points out the much spoken of, but little investigated effects of cooked food upon man.

The deliberate thermal treatment of various materials versus their occurrence by chance in a hearth is a difficult problem (Ch. 6). After a careful check of the sources, Perlès rejects two of the oldest assumed "fire-hardened" objects, the wood spears of Clacton-on-sea and of Torralba. The hypothesis of thermal treatment as an aid to splitting antler is also rejected. Perlès finds no conclusive evidence for primary splitting of flint nodules at their place of exposure, as was claimed for some Early and Middle Palaeolithic workshops. Such fires could have been natural. Considering the literature and personal communications, Perlès accepts the following cases of heat treatment: 1. hardening or charring certain implements made of wood, but not spears; 2. straightening antler, ivory and wood; 3. controlled heating of flint flakes or cores for a better retouch; 4. altering the original color of ochre, and 5. rare use of baked clay prior to the appearance of pottery.

All the above mentioned treatments require a high pyrotechnical level since a constant temperature should be maintained for as long as several days. This elaborate technique was achieved during the Upper Palaeolithic. We may add here that at the onset of the Holocene, the existence of furnaces capable of reaching a temperature of close to 1000° C and maintaining it for a few days is attested by the floor lime-plasters found in 8th–7th millennium pre-pottery sites in the Near East. The manufacture of a single floor plaster required the burning of several tons of stone.

The ritual use of fire is dealt with in Ch. 7. The author rejects any meaningful correlation between the location of inhumations and fire places, claiming that one cannot tell a deliberate from a chance occurrence. Similarly, the association between anthropophagy and hearth cannot be demonstrated. Extremely scant evidence for cremation could be retained from the examination of claimed cases in the literature. Perlès tends to weigh this scant evidence more conclusively on p. 154 than on p. 136.

These critical considerations of the hitherto known facts on the manipulation of fire by man reveal once again the difficulties one encounters in interpreting the observations, especially since much of the relevant data has been destroyed by the very phenomenon that we are studying. Perlès clearly demonstrates that the time has come for the much needed minute laboratory analyses to further advance our knowledge about various aspects of combustion. Otherwise the discrimination of ash stains from organic material or manganese is not always safe.

While every detail concerning fire was carefully checked, at times Perlès employs data uncritically which may be misleading. For example, the term "Mindel" is cited several times without cautioning the reader that its meaning is extremely vague. Elsewhere an unlikely date of 38,000 years BP is cited (p. 23, source not given) for a Yabrudian layer; yet, it is widely held that the Yabrudian is of Last Interglacial time. Is that date a typographical error? We found such an error in the legend of Fig. 36, p. 97, where Mr. Efimenko and the site of Kostienki are misspelled.

In my opinion, besides the very valuable screening of information offered by Perlès, the evaluation of the importance of fire in human evolution is the core of the matter. Perlès reminds us that numerous legends present fire as a divine substance; that it constitutes a property shared by no other creature on earth besides man; undoubtedly, as she cites it, man "before" differed from man "after". Perlès also cites Dr. Claudian (p. 101), who claimed that cooking constituted an extraordinary experience through which matter became intimately known to man, and the repeated alteration of matter gave rise to physical and metaphysical considerations. But actually an intimate knowledge of matter and its alteration – at least as far as stone is concerned – must have been gained long before cooking and the domestication of fire. In my opinion, the impact of fire on man is not to be sought in its implications, but rather in fire itself. It is the mastering of fire which has turned man into that "accident of nature", to use a definition given by Ramon Margalef.

Fire is certainly heat, light and transformation of energy, as maintained by Perlès (p. 152). But fire also moves, whispers, consumes, lives. Fire is alive. Our vocabularies contain numerous terms which are common to fire and to events of life and death. Now fire is the only one 'living' thing which man can kill and revive at will. It is here that the extraordinary impact of fire on man should be sought, in my opinion. Mastering of fire put man not only in a position of eater of cooked food but more importantly, in a position of creator. In this respect man is unique on earth. And only a creator thinks of creation. It is this solitary situation, coupled with the ability to govern the presence and the absence of a 'living' matter, that gave rise to reflections on death, time, philosophy and religion.

This view maintains that the cultural traits which best distinguish man from the animal world originated from the manipulation of fire, the history of which Catherine Perlès has so thoroughly and vividly presented.